

**Claim Listing**      This listing of claims will replace all prior versions and listings of claims in the application:

1.      (currently amended) A DNA expression construct comprising, ~~in expressible form,~~ a nucleic acid sequence which encodes a mutant  $\Delta^9$ -18:0-ACP desaturase having one or more amino acid substitutions selected from the group consisting of:

- a)      Ala, Thr, Ser, or Ile ~~at the residue homologous to~~ for Met 114 of SEQ ID NO: 1;
- b)      Arg ~~at the residue homologous to~~ for Thr 117 of SEQ ID NO: 1;
- 10      c)      Gly, Ala or Cys ~~at the residue homologous to~~ for Leu 118 of SEQ ID NO: 1;
- d)      Val or Leu ~~at the residue homologous to~~ for Pro 179 of SEQ ID NO: 1;
- e)      Val, Ser, Phe or Trp ~~at the residue homologous to~~ for Thr 181 of SEQ ID NO: 1; and
- f)      Leu or Thr ~~at the residue homologous to~~ for Gly 188 of SEQ ID NO: 1.

2. (currently amended) The DNA expression construct of Claim 1 in which the nucleic acid sequence encodes each of the following amino acid substitutions:

a) Ala ~~at the residue homologous to~~ for Met 114 of SEQ ID NO: 1;

b) Arg ~~at the residue homologous to~~ for Thr 117 of SEQ ID NO: 1;

c) Gly ~~at the residue homologous to~~ for Leu 118 of SEQ ID NO: 1;

10 d) Val ~~at the residue homologous to~~ for Pro 179 of SEQ ID NO: 1;

e) Val ~~at the residue homologous to~~ for Thr 181 of SEQ ID NO: 1; and

f) Leu ~~at the residue homologous to~~ for Gly 188 of SEQ ID NO: 1.

3. (currently amended) The DNA expression construct of Claim 1 in which the nucleic acid sequence encodes each of the following amino acid substitutions:

a) Thr ~~at the residue homologous to~~ for Met 114 of SEQ ID NO: 1;

b) Arg ~~at the residue homologous to~~ for Thr 117 of SEQ ID NO: 1;

- c) Ala ~~at the residue homologous to~~ for Leu 118 of  
SEQ ID NO: 1;
- 10 d) Leu ~~at the residue homologous to~~ for Pro 179 of  
SEQ ID NO: 1;
- e) Ser ~~at the residue homologous to~~ for Thr 181 of  
SEQ ID NO: 1; and
- f) Leu ~~at the residue homologous to~~ for Gly 188 of  
SEQ ID NO: 1.

4. (currently amended) The DNA expression construct  
of Claim 1 in which the nucleic acid sequence encodes each  
of the following amino acid substitutions:

- 20 a) Ser ~~at the residue homologous to~~ for Met 114 of  
SEQ ID NO: 1;
- b) Arg ~~at the residue homologous to~~ for Thr 117 of  
SEQ ID NO: 1;
- c) Cys ~~at the residue homologous to~~ for Leu 118 of  
SEQ ID NO: 1;
- d) Leu ~~at the residue homologous to~~ for Pro 179 of  
SEQ ID NO: 1; and
- e) Thr ~~at the residue homologous to~~ for Gly 188 of  
SEQ ID NO: 1.

5. (currently amended) The DNA expression construct of Claim 1 in which the nucleic acid sequence encodes the amino acid substitutions Arg ~~at the residue homologous to~~ for Thr 117 and Leu ~~at the residue homologous to~~ for Gly 188, each of SEQ ID NO: 1.

6. (currently amended) The DNA expression construct of Claim 1 in which the nucleic acid sequence encodes the amino acid substitution Arg ~~at the residue homologous to~~ for Thr 117 of SEQ ID NO: 1.

7. (currently amended) The DNA expression construct of Claim 1 in which the nucleic acid sequence encodes the amino acid substitution Phe ~~at the residue homologous to~~ for Thr 181 of SEQ ID NO: 1.

8. (currently amended) The DNA expression construct of Claim 1 in which the nucleic acid sequence encodes the amino acid substitution Trp ~~at the residue homologous to~~ for Thr 181 of SEQ ID NO: 1.

9. (currently amended) The DNA expression construct of Claim 1 in which the nucleic acid sequence encodes the amino acid substitutions Ile ~~at the residue homologous to~~ for Met 114 and Leu ~~at the residue homologous to~~ for Gly 188 of SEQ ID NO: 1.

10. (original) The DNA expression construct of any one of Claims 1, 2, 3, 4, 5, 6, 7, 8, or 9 wherein the nucleic acid sequence is selected from the  $\Delta^9$ -18:0-ACP desaturase sequences from a member of the group consisting of castor, brassica, sunflower, yellow lupine, cotton, coriander, maize, sesame, rice, flax, safflower, avocado and cucumber.

11. - 17. (cancelled)

18. - 53. (cancelled)

54. (new) A DNA expression construct comprising a nucleic acid sequence which encodes a mutant  $\Delta^9$ -18:0-ACP desaturase selected from the group consisting of

a. a mutant having each of the following amino acid substitutions: Ala for Met 114; Arg for Thr 117; Gly for Leu 118; Val for Pro 179; Val for Thr 181 and Leu for Gly 188, all of SEQ ID NO: 1;

b. a mutant having each of the following amino acid substitutions: Thr for Met 114; Arg for Thr 117; Ala for  
10 Leu 118; Leu for Pro 179; Ser for Thr 181 and Leu for Gly 188, all of SEQ ID NO: 1;

c. a mutant having each of the following amino acid substitutions: Ser for Met 114; Arg for Thr 117; Cys for

Leu 118; Leu for Pro 179; and Thr for Gly 188, all of SEQ

ID NO: 1;

d. a mutant in which Arg is substituted for Thr 117  
and Leu for Gly 188, each of SEQ ID NO: 1;

e. a mutant in which Ile is substituted for Met 114  
and Leu is substituted for Gly 188, each of SEQ ID NO: 1;

20 f. a mutant in which Arg is substituted for Thr 117  
of SEQ ID NO: 1;

g. a mutant in which Phe is substituted for Thr 181  
of SEQ ID NO: 1; and

h. a mutant in which Trp is substituted for Thr 181  
of SEQ ID NO: 1.

55. (new) The DNA expression construct of Claim  
54 wherein the nucleic acid sequence is selected from the  
 $\Delta^9$ -18:0-ACP desaturase sequence from a member of the group  
consisting of castor, brassica, sunflower, yellow lupine,  
cotton, coriander, maize, sesame, rice, flax, safflower,  
avocado and cucumber.

56. (new) A cell transformed with a DNA  
expression construct selected from the group consisting of  
the DNA expression constructs of Claim 54.

57. (new) The cell of Claim 56 which is a prokaryotic cell.

58. (new) The cell of Claim 56 which is an eukaryotic cell.

59. (new) The cell of Claim 58 which is a plant cell.

60. (new) A transgenic plant expressing a DNA construct selected from the group consisting of the DNA constructs of Claim 54.

61. (new) The transgenic plant of Claim 60 which is *Arabidopsis thaliana*.

62. (new) The transgenic plant of Claim 61 which is selected from the group consisting of castor, brassica, sunflower, yellow lupine, cotton, coriander, maize, sesame, rice, flax, safflower, avocado and cucumber.